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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/061,216	02/04/2002	Gregory P. Pogue	43276	3510

7590 06/25/2004

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EXAMINER

FOLEY, SHANON A

ART UNIT	PAPER NUMBER
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1648

DATE MAILED: 06/25/2004

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/061,216

Applicant(s)

POGUE ET AL.

Examiner

Shanon Foley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 70 and 79-84 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 70 and 79-84 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/19/2, 7/11/2, 3/21/4
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group I in the reply filed on March 31, 2004 is acknowledged.

With the election, applicant cancelled claims 71-78 and added new claims 79-84. Claims 70 and 79-84 are pending and under consideration.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 70 and 79-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garger et al. (US 6,033,895), (US 6,037,456), (US 6,303,779 B1) or (US 6,740,740 B2), each in the alternative, in further view of Francon et al. (US 5,075,110).

In the interest of conciseness and efficiency, only citations from '895 will be cited as a representative of the teachings of each Garger et al. patent since each of the patents listed above, i.e. (US 6,033,895), (US 6,037,456), (US 6,303,779 B1) and (US 6,740,740 B2), have very similar disclosures.

Claims 70 and 79-84 are drawn to a method of isolating a virus by homogenizing virus-containing plant tissue in $\text{Na}_2\text{S}_2\text{O}_5$, straining the homogenate to obtain green juice, adjusting the pH of the green juice to 5.0 with acid, heating the green juice to about 47° C for about 5 minutes followed by cooling for about 5 minutes or to about 5° C, centrifuging the green juice at about

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6000 x g for about 3 minutes, precipitating the supernatant in polyethylene glycol and NaCl to obtain a precipitate, resuspending the precipitate in water at a concentration of about 1 mg pr ml, extracting the precipitate in chloroform and butanol and centrifuging the extract, recovering and lyophilizing the aqueous phase of the centrifuged material and resuspending the lyophilized material at a concentration of about 5 to about 10 mg per ml of water.

Garger et al. teach a method of isolating a virus by:

- homogenizing virus-containing plant tissue in $\text{Na}_2\text{S}_2\text{O}_5$, see column 6, lines 7-10.
- straining the homogenate to obtain green juice, see column 5, line 64 to column 6, line 7.
- adjusting the pH of the green juice to 5.0 with acid and heating the green juice to about 47° C for about 5 minutes, see column 6, lines 14-36 and claims 1-3, 11 and 17.
- followed by cooling to about 5° C, see column 12, lines 43-45. Since the instant disclosure does not specifically define what is intended by “about 5° C” and the green juice is cooled to 15° C in the working example on page 17, it is determined that 15° C is equivalent to “about 5° C” instantly recited.
- centrifuging the green juice at about 6000 x g for about 3 minutes, see column 6, lines 63-66.
- precipitating the supernatant in polyethylene glycol and NaCl to obtain a precipitate, see column 12, lines 51-54 and claim 6.
- resuspending the precipitate in water at a concentration of about 1 mg per ml.

Although Garger et al. do not teach resuspending the precipitate in water, the reference specifically teaches that virus is recoverable after PEG treatment, see column 12, lines 51-54.

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Therefore, resuspending the product at a suitable concentration would have been prima facie obvious to one of ordinary skill in the art, absent unexpected results to the contrary.

- extracting the precipitate in chloroform and butanol and centrifuging the extract,

Garger et al. teach conventional methods of separation of viruses and proteins from plants include butanol and chloroform, see column 3, lines 47-53. One of ordinary skill in the art at the time the invention was made would have been motivated to use conventional methods of purifying viruses from plants by conventional means. One of ordinary skill would have had a reasonable expectation of success for purifying viruses from plants with chloroform and butanol because Garger et al. teach that this technique is useful and effective for small-scale virus purification.

The extraction method of Garger et al. is also found in Figure 1, column 7, line 39 to column 9, line 17, examples 2-5 bridging columns 12-16 and examples 8-11 bridging columns 18-22.

The instant claims additionally recite the following steps:

- recovering and lyophilizing the aqueous phase of the centrifuged material and
- resuspending the lyophilized material at a concentration of about 5 to about 10 mg per ml of water.

Garger et al. do not teach lyophilizing the virus. However, one of ordinary skill would have been motivated to lyophilize viruses because Francon et al. teach that lyophilizing viruses protects them and extends their preservation, see column 1, lines 10-16. One of ordinary skill in the art at the time the invention was made would have had a reasonable expectation of success for combining the teachings of Garger et al. with the lyophilization technique of Francon et al. because Garger et al. teach purifying virus and Francon et al. encompass the lyophilization of

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any purified virus, see claim 1. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, absent unexpected results to the contrary.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shanon Foley whose telephone number is (571) 272-0898. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel can be reached on (571) 272-0902. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Shanon Foley
Patent Examiner, 1648